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SKYLAB/EREP APPLICATION TO ECOLOGICAL, GEOLOGICAL
AND OCEANOGRAPHIC INVESTIGATIONS
OF DELAWARE BAY

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Bi-Monthly Technical Letter
Progress Report

1. Status

EREP was activated during the following Skylab overpasses of Delaware Bay:

<u>Track</u>	<u>Revolution</u>	<u>Date</u>	<u>Approximate Time(EDT)</u>	<u>Cloud Cover</u>
61	1197	Aug. 5	11 a.m.	30%
43	1747	Sept. 12	1 p.m.	10%
43	1818	Sept. 17	11 a.m.	60%

Large amounts of ground truth were collected during each overpass, including water sampling from boats and helicopters.

2. Recommendations

To make at least one more active pass during the next Skylab mission, on a day when cloud cover is minimal.

3. Expected Accomplishments

During the next reporting period we expect to complete analysis of the MSS tapes and photographs of the September 12, 1973, Skylab overpass. Maps of coastal vegetation, land use, water turbidity and current circulation will be prepared during the subsequent two months.

4. Significant Results

A program has been developed to correct geometric distortion of pictures reconstructed from MSS tapes.

Coastal vegetation species, land use, water turbidity and current circulation were clearly discernible in Skylab pictures of September 12, 1973. Remarkably high spatial resolution was attained.

5. Summary Outlook

The spatial and spectral resolution obtained from Skylab has exceeded our expectation. Detailed maps of coastal properties will be produced from both the digital tapes and the photographs.

6. Travel Summary

One trip was made to Bendix Aerospace Division to analyze Skylab-EREP digital tapes. During the next reporting period one trip to Washington, D. C. and one to Bendix Aerospace Division in Ann Arbor, are planned.

7. Change of Personnel

None

TABLE 1

NASA-ERTS AND SKYLAB AIRCRAFT OVERFLIGHTS
OF DELAWARE BAY TEST SITE

<u>DATE</u>	<u>AIRCRAFT AND ALTITUDE</u>	<u>AGENCY</u>
September 14, 1970	RB-57 at 60,000 ft. altitude	(NASA-Houston)
November 4, 1971	U-2 at 65,000 ft. altitude	(NASA-Ames)
August 26, 1971	C-54 at 11,500 ft.	(NASA-Wallops)
September 15, 1972	U-2 at 65,000 ft. altitude	(NASA-Ames)
October 27, 1972	C-130 at 10,000 ft. altitude	(NASA-Houston)
December 3, 1972	U-2 at 65,000 ft. altitude	(NASA-Ames)
March 24, 1973	U-2 at 65,000 ft. altitude	(NASA-Ames)
April 5, 1973	C-130 at 10,000 ft.	(NASA-Houston)
May 14, 1973	C-130 at 10,000 ft.	(NASA-Houston)
April, 1973 - November, 1973	Sidelooking Radar Overflights	(NASA-Wallops-Nav)
June 1, 1973	C-54 at 11,500 ft.	(NASA-Wallops)
August 17, 1973	Laser Wave Profiling Overflights	(NASA-Wallops-Nav)
August 23, 1973	Laser Chlorophyll and Oil Detection Overflights	(NASA-Wallops)
August 29, 1973	C-130 at 3,000 to 25,000 ft.	(NASA-Houston)

*This list does not include helicopters provided for water sampling during ERTS-1 overpasses, nor small aircraft used by the University of Delaware for low altitude photographic overflights.

Recent Papers

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2. Klemas, V., Detecting Oil in Water, Instrumentation Technology, September, 1972.
3. Klemas, V., Srna, R., and Treasure, W., Investigation of Coastal Processes Using ERTS-1 Satellite Imagery, American Geophysical Union Annual Fall Meeting, San Francisco, California, Dec. 4-7, 1972.
4. Klemas, V., Daiber, F., Bartlett, D., Crichton, O., Fornes, A., Application of Automated Multispectral Analysis to Delaware's Coastal Vegetation Mapping, American Society of Photogrammetry Annual Meeting, Washington, D. C., March 11-16, 1972.
5. Klemas, V., Daiber, F., Bartlett, D., Identification of Coastal Vegetation Species in ERTS-1 Imagery, Proceedings NASA ERTS-1 Symposium on Significant Results, Washington, D. C., March 5-9, 1973.
6. Kupferman, S., Klemas, V., Polis, D., and Szekiolda, K., Dynamics of Aquatic Frontal Systems in Delaware Bay, A.G.U. Meeting, Washington, D.C., April 16-20, 1973.
7. Klemas, V., Srna, R., Treasure, W., Assessment of Sediment Dispersal Patterns on Delaware Bay by Use of ERTS-1 Satellite Imagery, Proceedings International Symposium on Interrelationships of Estuarine and Continental Shelf Sedimentation, Bordeaux, France, July 9-14, 1973.
8. Klemas, V., (Invited Paper), Requirements for Laser Systems Used in Coastal Investigation, Proceedings Conference on the Use of Lasers for Hydrographic Studies, Wallops Island, Va. September 12, 1973, Sponsors NASA, NOAA, EPA, NAVY,
9. Klemas, V., Borchardt, J. F., Treasure, W. M., Suspended Sediment Observations from ERTS-1 Remote Sensing of Environment, Vol. 2, 1973.
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11. Klemas, V., (Invited Paper), Satellite Studies of Turbidity, Waste Disposal Plumes and Pollution - Concentrating Water Boundaries, Proceedings Second Conference on Environmental Quality Sensors, National Environmental Research Center, Las Vegas, Nevada, October 10, 1973, (Sponsor EPA).
12. Klemas, V., Bartlett, D., Rogers, R., Leed, L., Inventories of Delaware's Coastal Vegetation and Land-Use Utilizing Digital Processing of ERTS-1 Imagery, Proceedings NASA Third ERTS-1 Symposium, Washington, D. C., December 10-14, 1973.
13. Klemas, V., Otley, M., Wethe, C., Rogers, R., Application of ERTS-1 to the Management of Delaware's Coastal Resources, Proceedings NASA Third ERTS-1 Symposium, Washington, D. C., December 10-14, 1973.
14. Klemas, V., Otley, M., Davis, G., Rogers, R., Mapping Coastal Water Properties and Current Circulation with Spacecraft, Second Joint Conference on Sensing of Environmental Pollutants, Washington, D. C., December 10-12, 1973. (EPA, NOAA, NASA, DOT, ETC.).